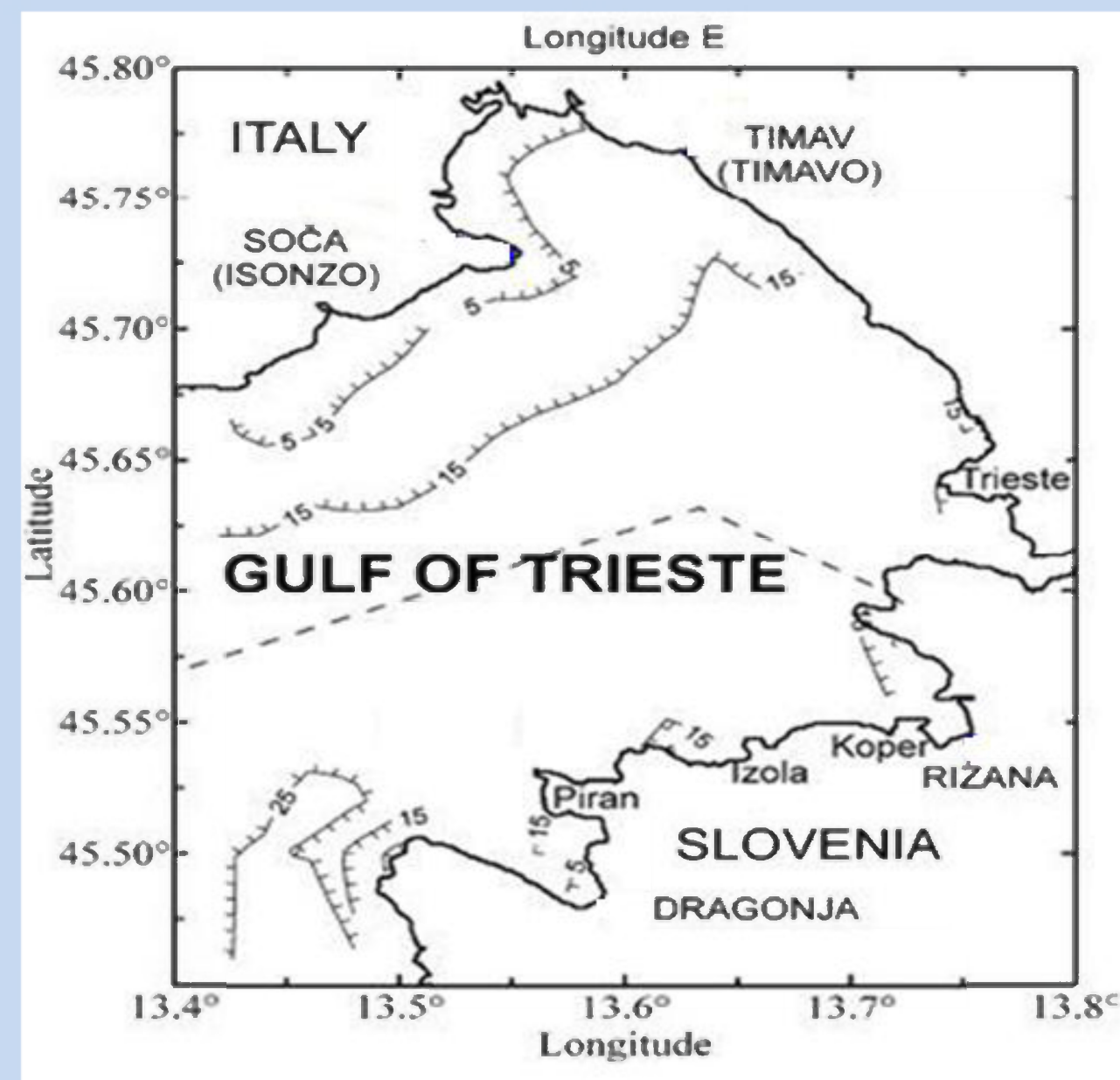


Effect of induced anoxia on nematode densities, vertical distribution patterns and recovery at the Gulf of Trieste (Northern Adriatic Sea)

Mehrshad Taheri^{1,2}, Mateja Grego³, Bettina Riedel⁴, Magda Vincx¹ and Jan Vanaverbeke¹

1. Ghent University, Biology Department, Marine Biology Research Group, Krijgslaan 281, S8, 9000 , Ghent, Belgium.
E-mail: mehrshad.taheri@ugent.be
2. Iranian National Institute for Oceanography, 9 Etemadzadeh Ave, West Fatemi Str, Tehran. Iran.
3. Marine Biology Station Piran, National Institute of Biology, Fornace 41, 6330 Piran, Slovenia.
4. Department of Limnology and Oceanography, University of Vienna, Althanstrasse 14, 1090, Vienna, Austria.



Introduction

Increasing oxygen stress in the gulf:

- a semi-enclosed
- shallow depth with a fine-grained substrate
- a high riverine input
- high productivity (marine snow events)
- long water residence in summer/autumn

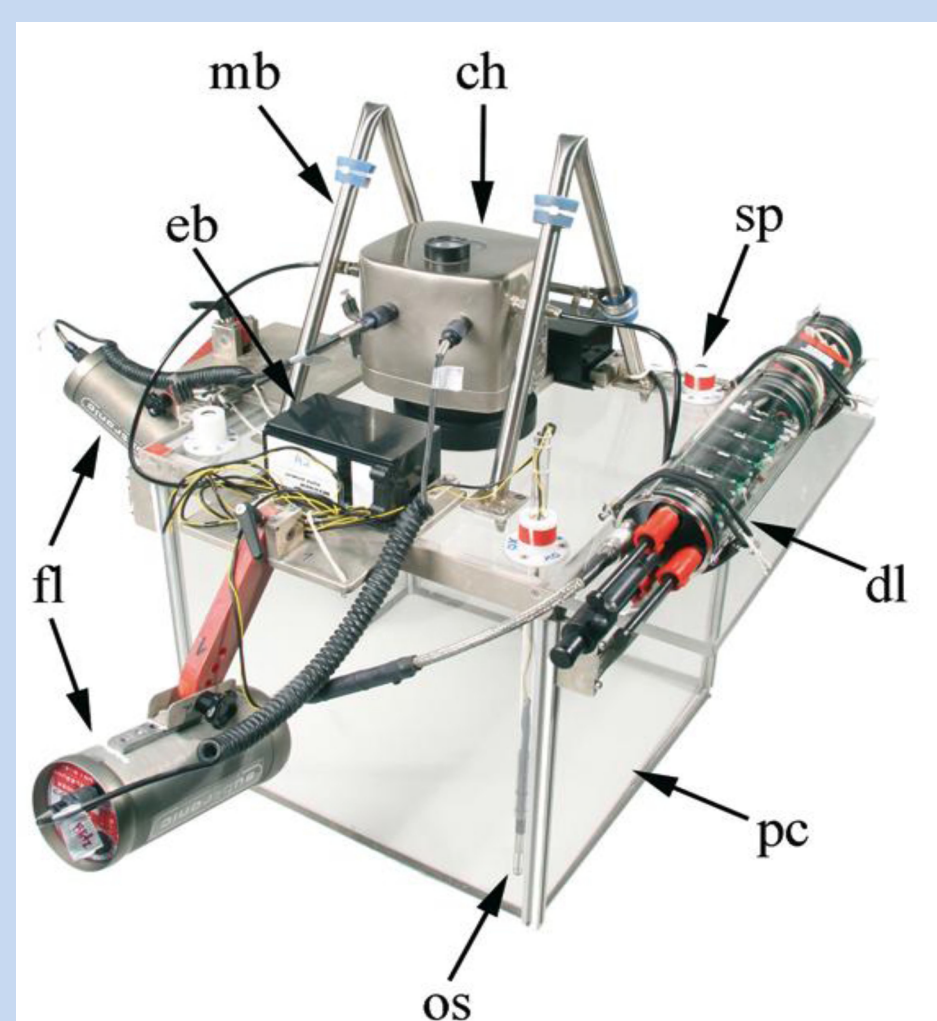


Material and Method

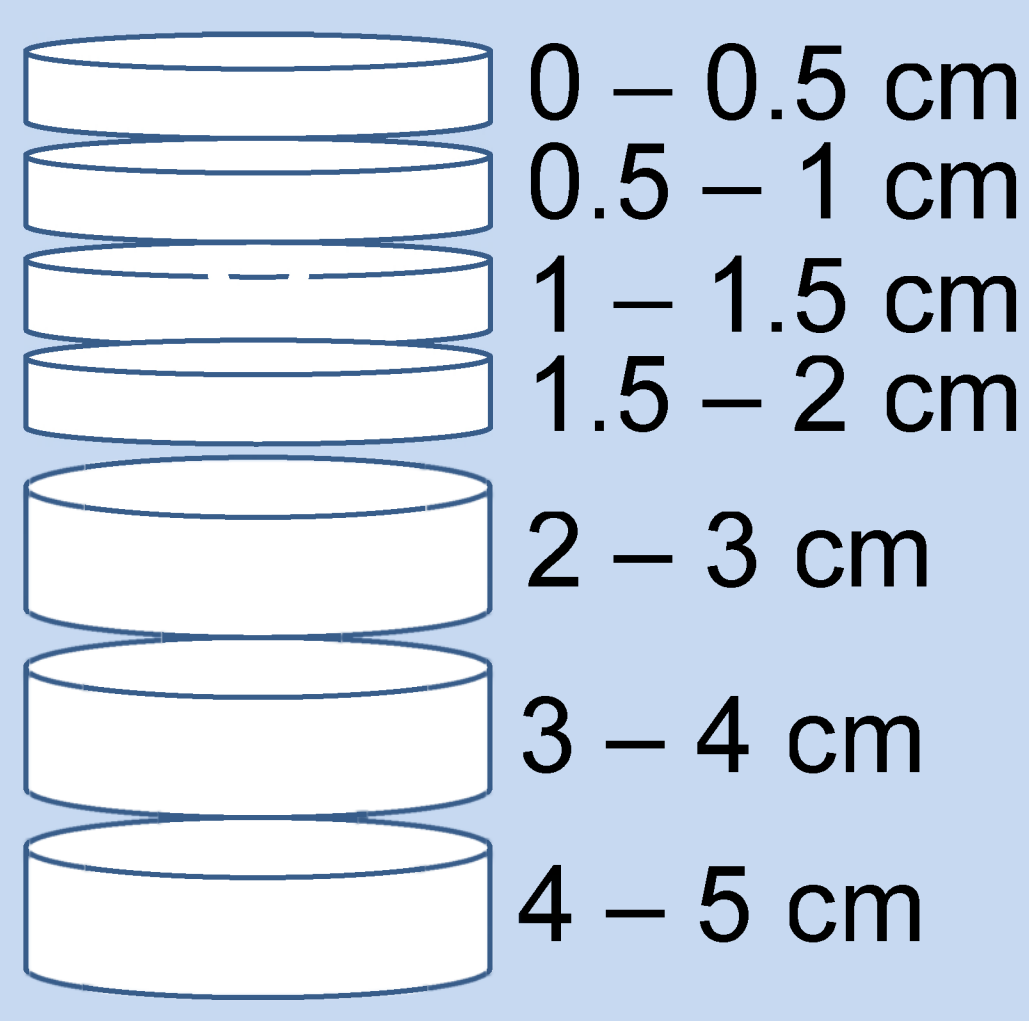
duration of the experimental anoxia and recovery

Normoxia 1	9 days anoxia	9 days recovery
Normoxia 2	1 month anoxia	1 month recovery
	10 months anoxia	3 months recovery

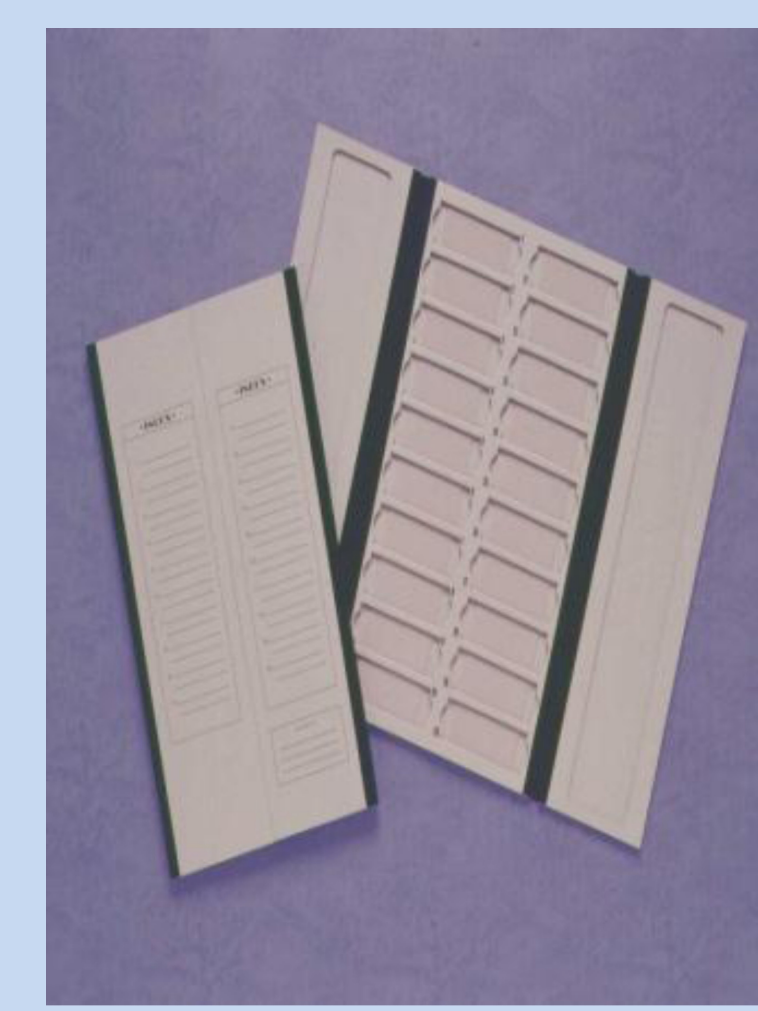
Data analysis till 5 cm with 1 cm interval
till 2 cm with 0.5 cm interval



Induced anoxia



Three replicates



Making slides

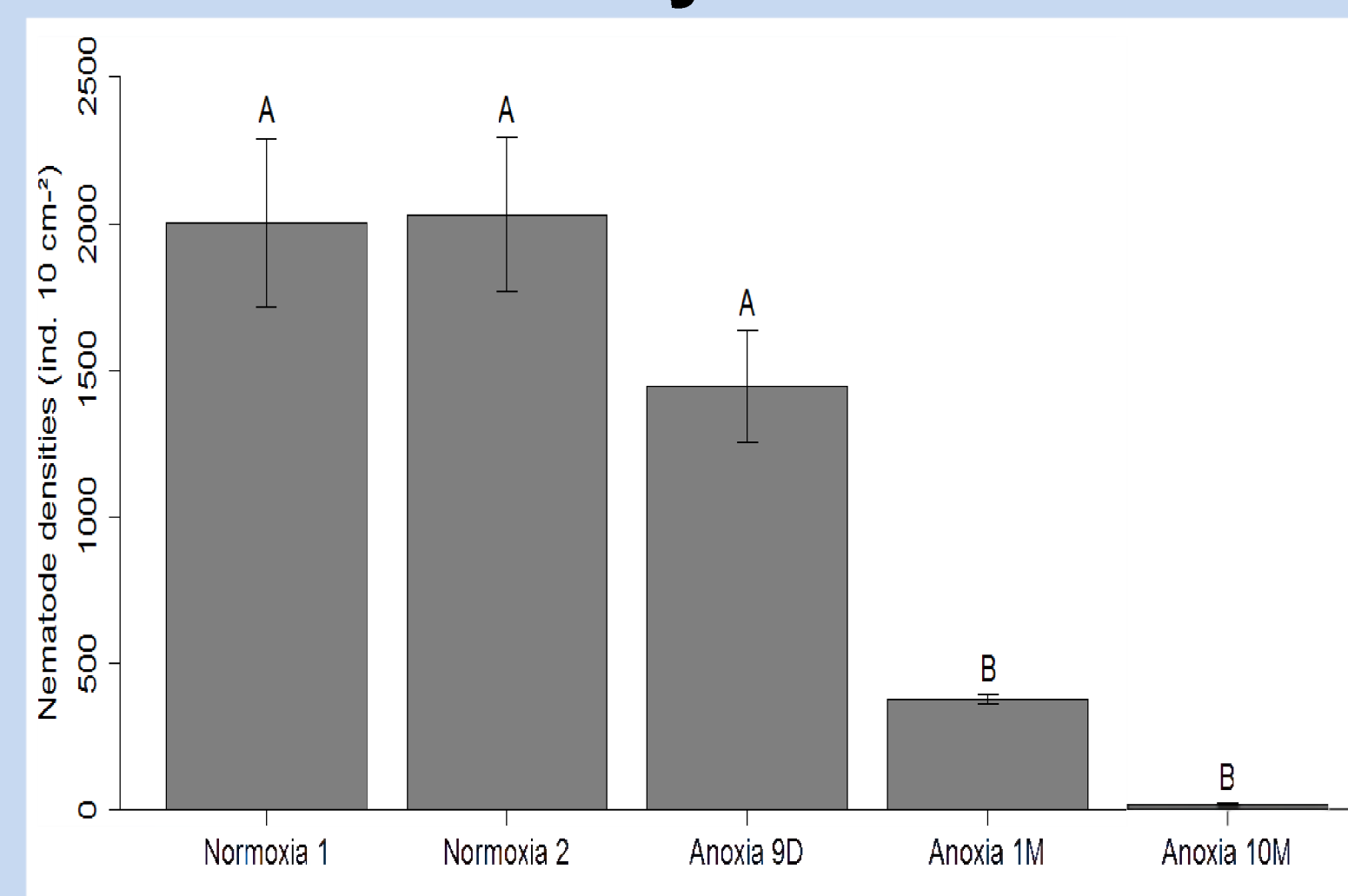


Identification

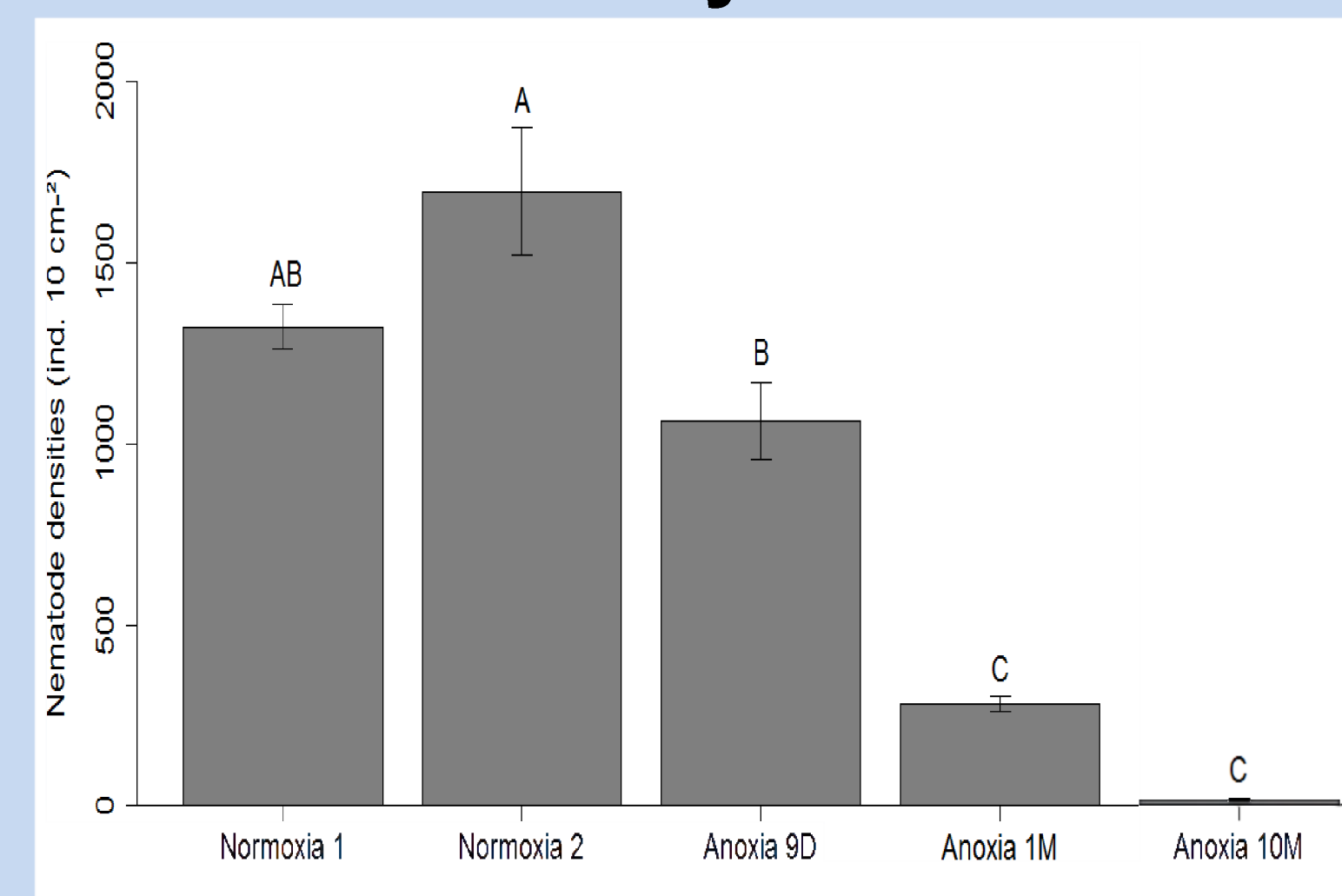
Results

Anoxia

Total density till 5 cm



Total density till 2 cm



Total species number till 5 cm

Total species number till 2 cm

Highest in normoxia and lowest in anoxia 10 months

Total shannon diversity till 5 cm

Total shannon diversity till 2 cm

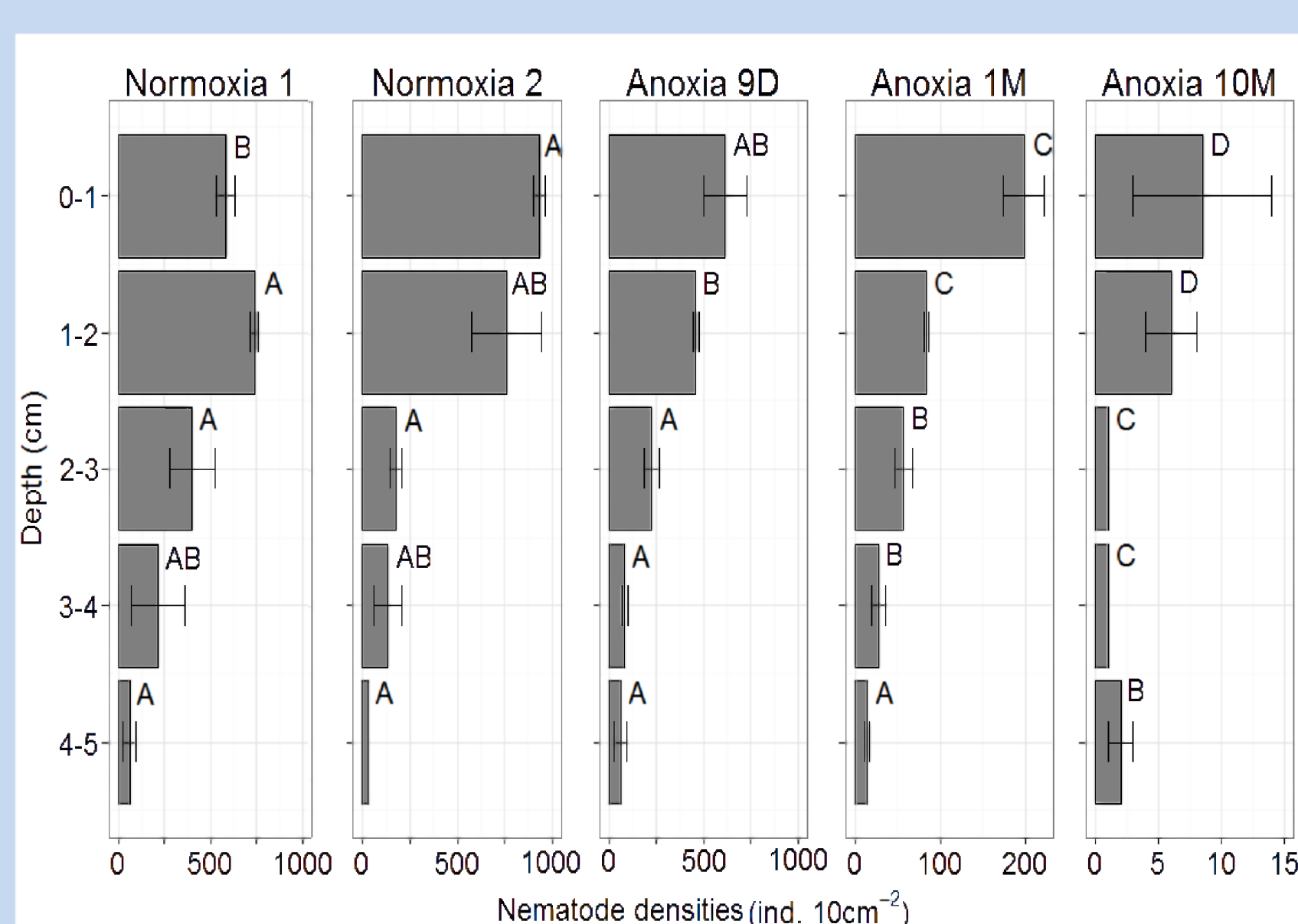
Highest in normoxia and lowest in anoxia1 and 10 months

Total evenness till 5 cm

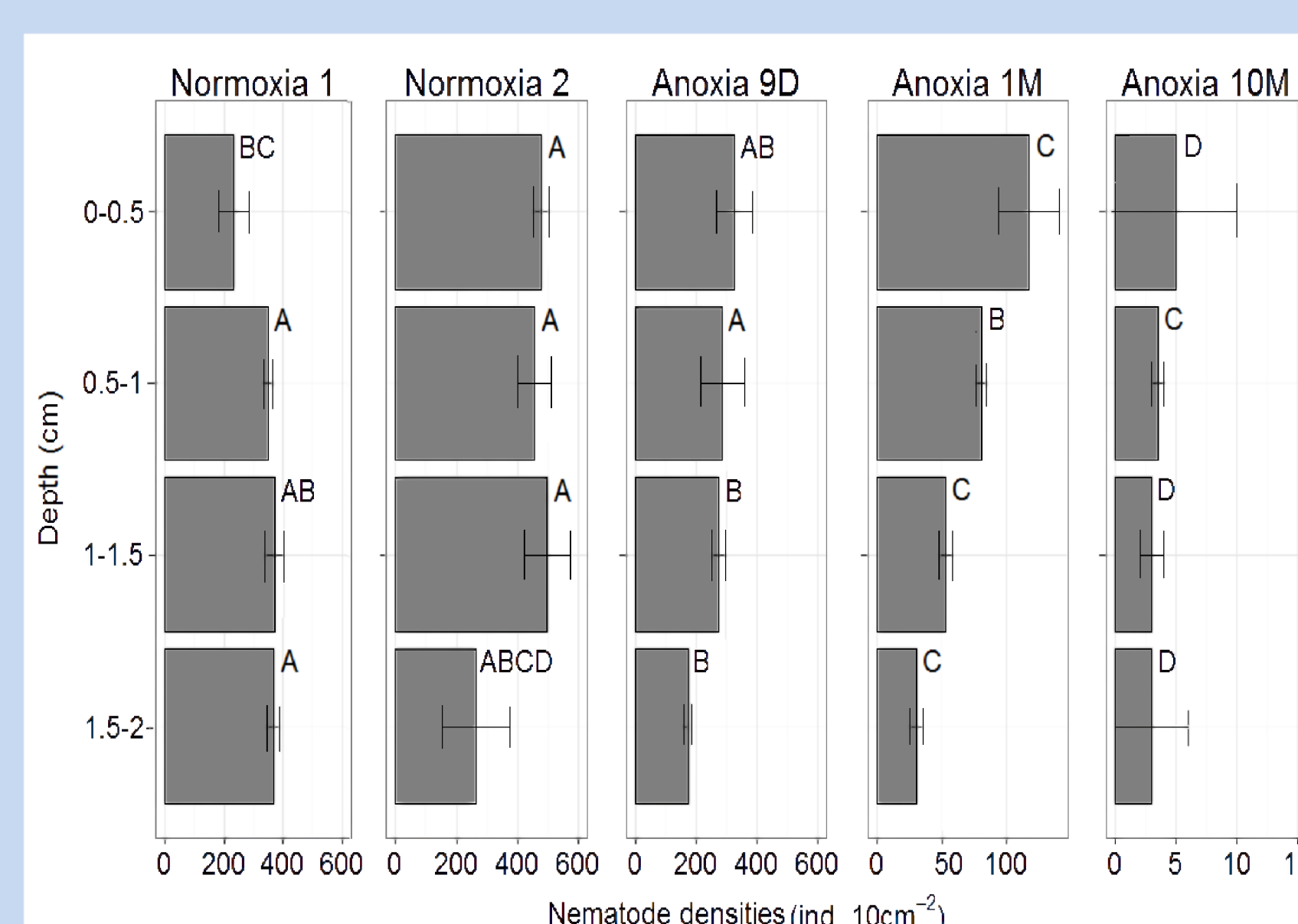
Total evenness till 2 cm

No significant differences Anoxia 10 months > normoxia > anoxia1 month

Vertical density till 5 cm



Vertical density till 2 cm



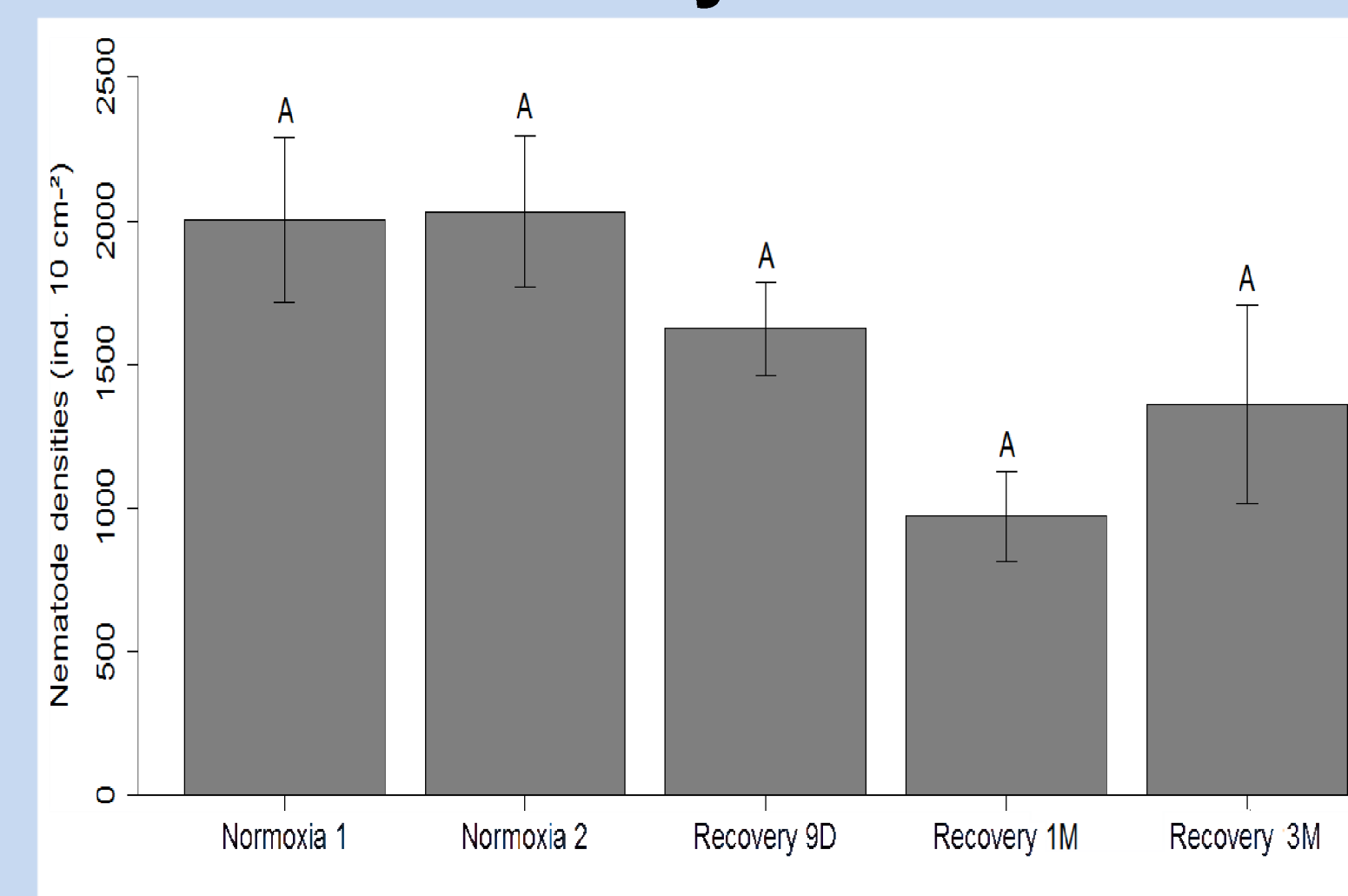
Community composition till 5

Community composition till 2

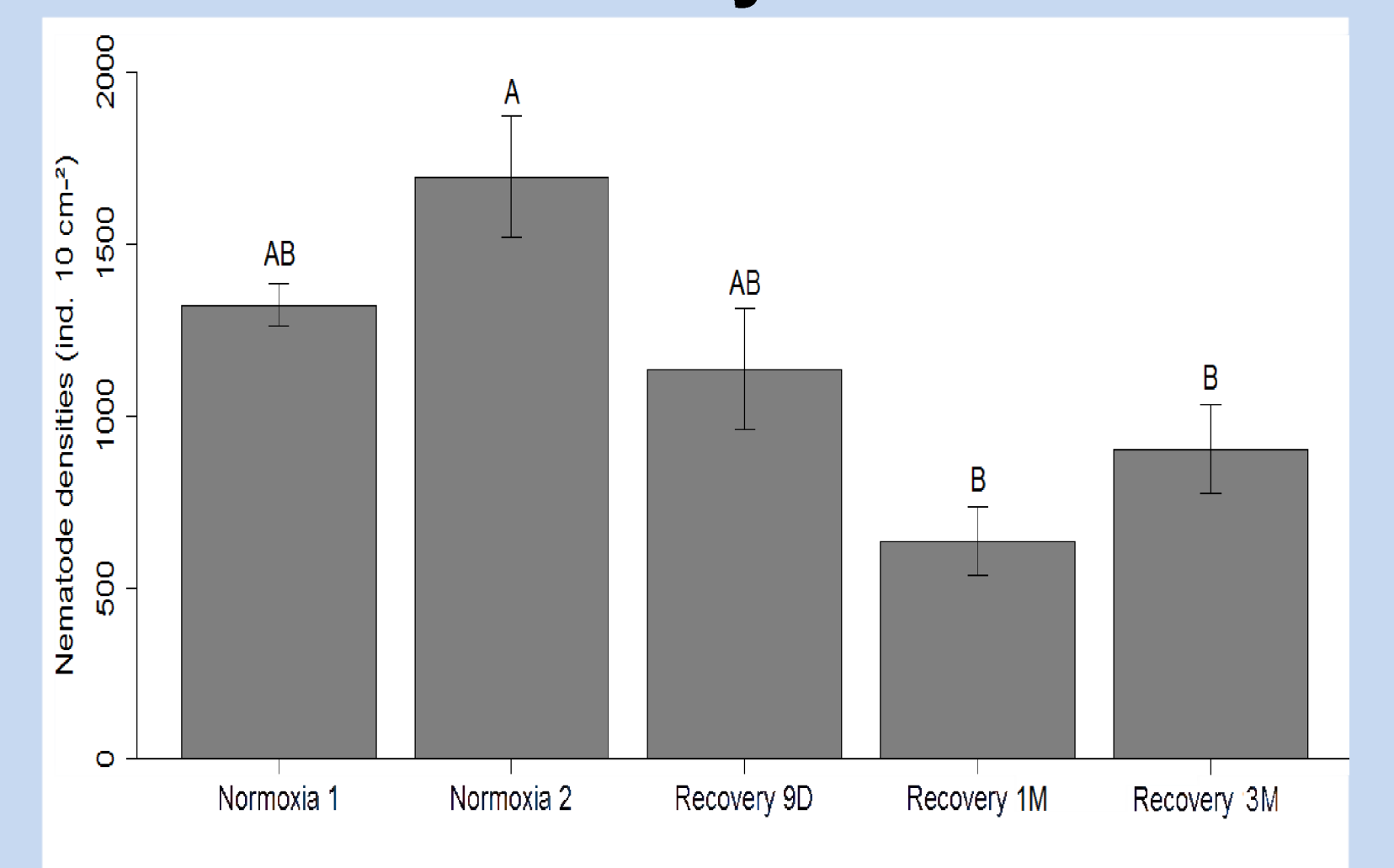
No significant differences

Recovery

Total density till 5 cm



Total density till 2 cm



Total species number till 5 cm

Total species number till 2 cm

No significant differences

Total shannon diversity till 5 cm

Total shannon diversity till 2 cm

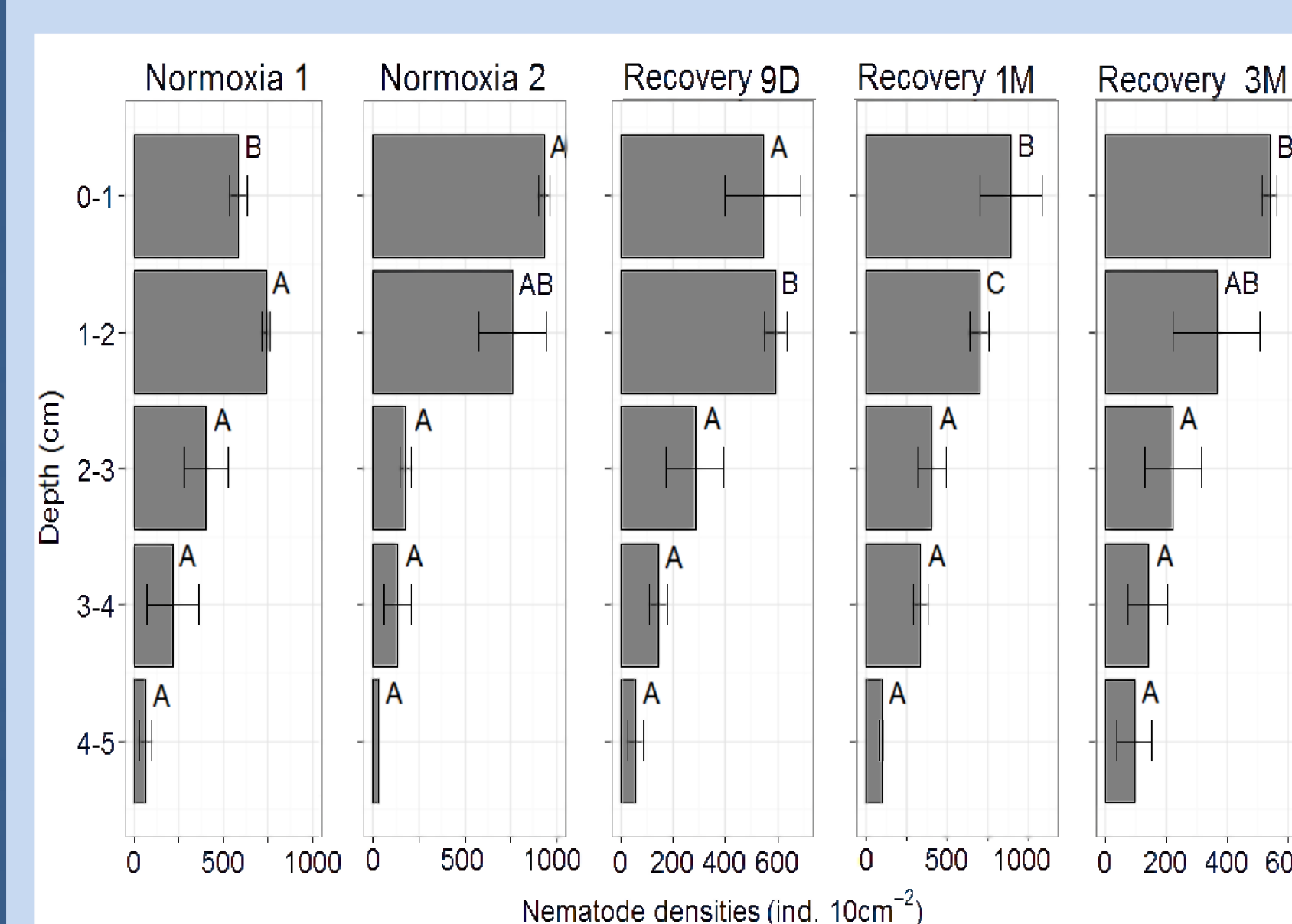
No significant differences

Total evenness till 5 cm

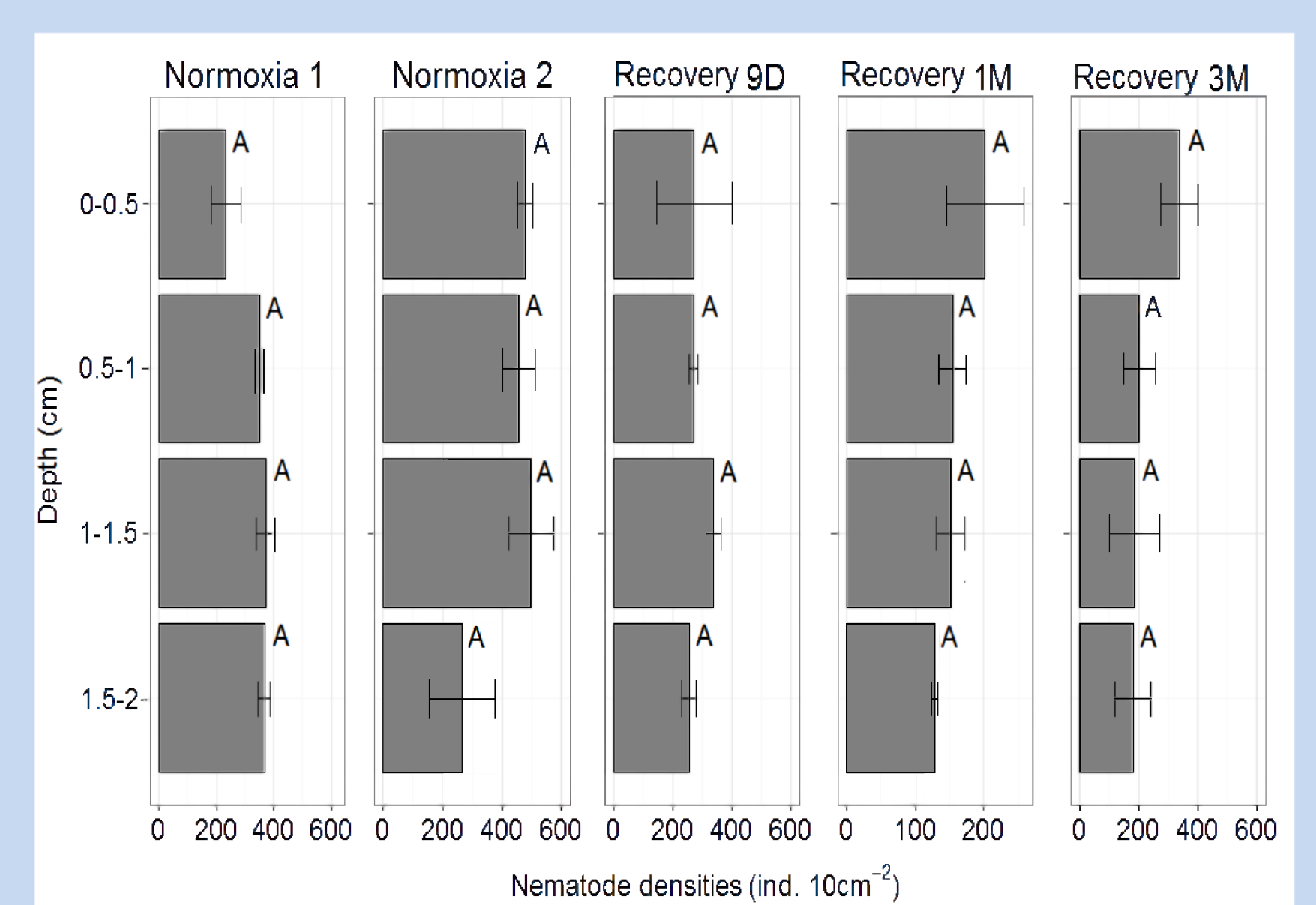
Total evenness till 2 cm

Lowest in recovery 1 month

Vertical density till 5 cm



Vertical density till 2 cm



Community composition till 5

Community composition till 2

No significant differences

In conclusion, our results indicated that nematodes communities were tolerant to short term anoxia (9 days). This may relate to adaptation mechanisms of nematodes to live naturally in low oxygen environments. However, longer term of anoxia (more than one month) had a negative effect on nematode communities which can be related to an increase in concentration of hydrogen sulphide (Riedel et al., 2012). Our results also revealed that nematodes communities can be recovered even after 10 months anoxia. This process can result from removing unfavoured conditions during the recovery period and or auto-ecological features including nematode reproduction capacity.